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ning of each regular issue of the PCT Gazette.

(54) Title: LIGATION-BASED SYNTHESIS OF OLIGONUCLEOTIDES WITH BLOCK STRUCTURE

(57) Abstract: The present invention relates to a method of producing single-stranded nucleic acid molecules from oligo- or polynucleotides wherein each of said oligo- or polynucleotides has a predefined 5' or 3' terminus, comprising the steps of (a) annealing an adaptor oligonucleotide simultaneously or step by step to (aa) a first oligo- or polynucleotide; and (ab) a second oligo- or polynucleotide wherein the 5'-terminus of said adaptor oligonucleotide is complementary in sequence to the 5' terminus of said first oligo- or polynucleotide and the 3'-terminus of said adaptor molecule is complementary in sequence to the 3' terminus of said second oligo- or polynucleotide; and optionally (a') simultaneously with or subsequently to step (a) annealing at least one further adaptor oligonucleotide to free termini of said first or second oligonucleotides and to free termini of further oligo- or polynucleotides; (b) optionally filling in gaps between the neighbouring ends of said oligo- or polynucleotides; (c) ligating said oligo- or polynucleotides; and (d) removing said at least one adaptor oligonucleotide. In a preferred embodiment of the method of the invention, said single-stranded nucleic acid molecules represent a collection of nucleic acid molecules wherein either said first or said second oligo- or polynucleotide is invariable in sequence between all members of said collection of nucleic acid molecules.

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